



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re Application of: ZIMMERMAN *et al.* ) PATENT  
Serial No.: 09/758830 )  
Filed: January 11, 2001 ) Atty. Docket No.: P-5231CIP  
For: **CONTROLLER FOR SALT DOSAGE** )  
**FOR A WATER SOFTENER AND** )  
**METHOD OF REGENERATING A** )  
**WATER SOFTENER** ) CINTINS, Ivars C.  
Group Art Unit 1724 )

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Dear Sir:

This is in response to the Office Action of December 18, 2002, setting an initial term for response expiring March 18, 2003. A request for an extension of time, up and to May 18, 2003, is enclosed herein along with the required fee. Please charge any additional fees due or credit any overpayments to Deposit Account No. 18-2284.

## **RESPONSE**

### **I. Election/Restriction**

The Applicant acknowledges its prior election to prosecute Claims 1-12 and 24-33 without waiving any right to prosecute the non-elected claims under one or more related applications during the pendency of this application.

### **III. Claim Rejections—35 U.S.C. § 103 (a)**

The Examiner has rejected Claims 1-2 and 24-33 as being unpatentable as obvious over Gauer *et al.* (U.S. 4,722,797), Johnson (U.S. 5,232,953), or Janke *et al.* (U.S. 5,234,601) in view of McGough *et al.* (U.S. 4,248,601). More specifically, the Examiner has determined the each of the “primary” references discloses the claimed invention except the recited water quantity and temperature determinations and calculations and that it would have been obvious to one skilled in the art to modify the softeners of the primary references to include the disclosure of McGough *et al.* to reach the claimed inventive method. Applicant respectfully disagrees with the Examiner’s determination of obviousness under Section 103(a) for the reasons set forth below.

While the Applicant finds the Examiner’s arguments to be interesting, it believes that the disclosure of McGough, alone or in combination with the cited primary references, does not disclosure, teach or suggest the claimed invention. In fact, the McGough reference may teach away from the claimed invention. The McGough (‘601) patent is for a salt purification process. When potassium chloride and sodium chloride are in a water solution together, their individual solubilities act very differently, both in magnitude and in the slope of solubility verses temperature trend as is shown in the following chart:

The solubility of salt(s) in mg in 100ml of water.

|        | <u>Both salts in water</u><br>('601 solubilities ) |      | <u>Only one salt in water</u><br>(Softener solubilities) |      |
|--------|--|------|--|------|
|        | KCl  | NaCl | KCl  | NaCl |
| 32° F  | 10.4   | 31.9 | 28.0   | 35.7 |
| 212° F | 35.9   | 25.7 | 56.3   | 39.2 |

The examiner will note that NaCl solubility with temperature trend reverses(NaCl solubility goes down from 31.9 to 25.7 with both salts present in the water whereas it goes up from 35.7 to 39.2 when only NaCl is present) when KCl is in the water. This reversal is what makes the '601 patent purification process work. The process of the '601 patent purifies the salt by changing the temperature in a controlled fashion to raise one and reduce the other concentration.

The Applicant has hard time going from the 601 patent and other cited prior art softener patents to the method that is claimed in this application. In the case of claimed softener method, it is not changing the temperature to get a desired result. It is measuring the temperature (whatever it may be), measuring a water quantity (whatever that may be) and using the solubility verses temperature function of the one specific salt chosen and calculates the amount of water needed to dissolve a desired amount of salt. Put this way; the '601 patent takes advantage of the solubility behavior of a dual salt solution to purify one salt from a blend of two salts by using a heating and cooling cycle; the difference in the slope of the solubility-temperature trend line of the two salts is used. The claimed softener method uses just the solubility - temperature trend line. The '601 patent does not teach such use, does not suggest such, and in fact teaches away from such use by specifically requiring the adjustment of temperature of the solution to reach the desired purification. Simple physical chemistry dictates that the claimed method of the instant application will not work if the temperature is adjusted. For these reasons, the applicant would maintain that the prior art references, particularly the '601 patent, do not teach or suggest, alone or in combination, the principals of the claimed softener method.

The Applicant respectfully submits that because one skilled in the art would not reach the claimed invention through combination of the cited references, the Examiner's obvious rejections under Section 103(a) are misplaced and, as such, should be withdrawn.

#### CONCLUSION

In view of the foregoing comments, the Applicant respectfully submits that the Examiner's objections and rejections have been traversed and requests that all claims, as amended, be allowed and that the application issue in due course.

Please note that the name of Applicant's Counsel's law firm changed to Piper Rudnick in April 2002. All other previously submitted contact information remains the same.

Respectfully submitted,

**PIPER RUDNICK**

By:   
Thomas W. Ryan  
Reg. No. 43,072

PIPER RUDNICK  
P.O. Box 64807  
Chicago, IL 60664-0807  
(312) 368-4000

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